AMSAT News Service Weekly Bulletins
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AMSAT NEWS SERVICE
ANS-319

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:

ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-319.01
AMSAT NextGen Progress

AMSAT News Service Bulletin 319.01
  From AMSAT HQ SILVER SPRING, MD.
November 15, 2009
To All RADIO AMATEURS
BID: $ANS-319.01

Just to give everyone a little update on how the AMSAT NextGen Program is doing @ Binghamton University . . .

(a) CONTROL & EXPERIMENT SYSTEMS
- The Systems Engineering students are doing well analyzing the ARISSat documentation and will be scheduling meetings with the primary AMSAT engineering contact to discuss documentation questions.

- Identified Design Changes Needing to Occur for NextGen:
* The Control/Safety Timer needs to be adapted to conform with the CubeSat deployment switch standard
* Consolidation of Camera functionality into a separate camera payload board (functionality is currently spread across a number of boards in the stack)

(b) RF SYSTEMS
- The Systems Engineering students are doing well analyzing the ARISSat documentation and will be scheduling meetings with the primary AMSAT engineering contact to discuss documentation questions.

- Identified Design Changes Needing to Occur for NextGen:
* Antenna design choice - single dual-band vs dual mono-band
* New RF container design needed

(c) POWER & STRUCTURE SYSTEMS
- The Systems Engineering students are doing well analyzing the ARISSat documentation and will be scheduling meetings with the

primary AMSAT engineering contact to discuss documentation questions.
- The Hardware Engineering students have been busy creating a preliminary design for solar panel deployment and use of super-capacitors to replace the battery. A Preliminary Design Review is being scheduled in mid-November with the AMSAT Engineering Team.

- Identified Design Changes Needing to Occur for NextGen:
* Replace Battery with modular stacks of Supercapacitors in parallel to the Solar Panels
* Shrink ICB (Interconnect Board) to fit within CubeSat frame
* Reduce PSU footprint by moving camera power function to a Camera Payload Board (CPB)
* Slight PSU voltage supply design change
* Remove test/program load functionality from ICB to external test board (XTB) via standard CubeSat & PPOD maintenance ports (per CubeSat spec.)

We are still on-target to have an engineering model ready for the AMSAT table at the 2010 Dayton Hamvention with readiness for launch later in 2010.

[ANS thanks Alex, N3NP, for the above information]

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SB SAT @ AMSAT $ANS-319.02
AO-51 38k4 bps Operations 16-19 November

AMSAT News Service Bulletin 319.02
From AMSAT HQ SILVER SPRING, MD.
November 15, 2009
To All RADIO AMATEURS
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Okay 38k4 packet operators, get ready to start your engines!!

AO-51 is scheduled for a four day period of high speed packet operations at 38k4 bps. It's been about 2 years since the satellite was configured in this mode. The satellite will be in high power mode (only TXA 435.150 transmitter ON) during this period.

The posted schedule is as follows:

November 16 - November 19

38k4 BBS, L/U
Uplink: 1268.700 MHz 9k6 FM
Downlink: 435.150 MHz 38k4 FM

Usually this means the mode will run from around 22:00-23:00UTC November 15 (Sunday evening Eastern US) until around 22:00-23:00UTC November 19 (Thursday evening Eastern US).

Users of the PacketBBS are encouraged to send me feedback/reports on your experiences during this period.

Please note that 38k4 packet operations require a receiver with sufficient bandwidth and that your normal 9600 radio receive connection will not work. Users also need a TNC that is capable of running packet at 38k4. A special "wide" filter like the ones available through Symek (www.symek.com) need to be installed in the radio to "tap" a wide band signal. A few commercially available TNCs, like the KPC-9612+ and the Paccomm Spirit-2 (with satellite

option) can be used.

You can use a PCR-1000 or PCR-1500/2500 as a wide band receiver, without modification. Use the packet jack and set the receiver to FM (not FM-W) with a 50 kHz filter width. If you have one of these receivers, but not the right TNC, you might try Doug Qualigiana's KA2UPW sound card software here: http://www.quagliana.com/willow/ It will decode at 9600 and 38k4. There was an article about his software in the AMSAT Journal just a few months ago.

Hope to see you active on AO-51 at 38k4!

[ANS thanks Mark, N8MH, for the above information]

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SB SAT @ AMSAT $ANS-319.03
AO-7 has 35th Birthday on 15 November

AMSAT News Service Bulletin 319.03
From AMSAT HQ SILVER SPRING, MD.
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To All RADIO AMATEURS
BID: $ANS-319.03

Thirty-five years ago this Sunday (15 November), AO-7 reached orbit. The following is from the AO-7 page on the AMSAT-NA Web site:

"AMSAT-OSCAR 7 was launched November 15, 1974 by a Delta 2310 launcher from Vandenberg Air Force Base, Lompoc, California. AO-7 was launched piggyback with ITOS-G (NOAA 4) and the Spanish INTASAT. The second phase 2 satellite (Phase II-B). Weight 28.6 kg. Orbit 1444 x 1459 km. Inclination 101.7 degrees. Octahedrally shaped 360 mm high and 424 mm in diameter. Circularly polarized canted turnstile VHF/UHF antenna system and HF dipole."

If you're not set up for the linear satellites but have a receiver with CW/SSB capability on 2 meters, try listening to a pass. The middle of her Mode B downlink passband is 145.950 mHz, and you will find most of the activity occurring between 145.940 mHz and 145.960 mHz. Generally, you'll hear CW operators below 145..950 and SSB operators above 145.950.

Here is a link to the online log for AO-7:
http://www.planetemily.com/ao7/ao7log.php

[ANS thanks Tim, N3TL, for the above information]

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SB SAT @ AMSAT $ANS-319.04
SatPC32 V.12.8a Upgrade Available for Download

AMSAT News Service Bulletin 319.04
From AMSAT HQ SILVER SPRING, MD.
November 15, 2009
To All RADIO AMATEURS
BID: $ANS-319.04

Erich, DK1TB has uploaded an upgrade of SatPC32 (V. 12.8a) on his website http://www.dk1tb.de.

The V.12.8a update includes the following:

1. The main program SatPC32 can now manage up to 4 different configurations. Configuration #1, for example, could steer a single satellite transceiver to work the normal V/U and U/V satellites. Configuration #2, for example, could steer a separate radio (FT-817, IC-706MKIIG) as RX and the satellite transceiver as TX. This configuration is useful for AO-51, mode V/S. Most users will receive S-band with a 13cm/2m down converter and a 2m RX. Configuration #1 would not work because the satellite transceiver cannot simultaneously receive and transmit on the same band (2m).

The Keplerian data only needs to be updated with one configuration. The new data will be used by the all configurations.

The configurations can be switched via mouse click in menu 'Setup', 'Configurations'.

2. In 'Real Time' mode the program updates it's calculations once per second. With previous versions the update interval could not be changed. Now the speed can be increased by 5 and 10 fold (menu 'CAT'). On the higher bands the Doppler shift can change by 50 Hertz per second and more. That will cause scale effects on the received signal. Due to the narrow filters CW signals even can be lost. Increasing the update speed can prevent these effects.

3. In menu 'CAT' a bottom line has been added. It displays the complete data line from file Doppler.SQF. So, the optional comments at the end of a data line can also be seen. That is particularly helpful with satellites that provide multiple modes (i.e. AO-51 and ISS) and therefore require multiple data lines in Doppler.SQF.

4. CAT steering of the Icom radios IC-706MKIIG, IC-7000 and IC-910H has been simplified. With previous program versions the IC-706MKIIG and IC-7000 required an extra line between the radio's ACC jacket and the PC's COM port to inhibit frequency changes while the radio is transmitting (because that would cause frequency errors). The IC-910H required the line with SatPC32ISS. This line is no longer necessary.

5. The programs now works flawlessly on 64-bit Windows systems, except rotor steering with the interfaces FODTrack, KCT, IF-100 and RifPC. The kernel driver that is used to output data to these interfaces is a 32-bit version. A 64-bit version is not available yet. The KCT and RifPC could not be used anyhow with 64-bit systems because they require an ISA slot which is no longer supported by newer PCs.

The program also works flawlessly under Windows 7. It supports the 96-dpi (100%) and the 120-dpi 125%) fonts. It does not work properly with the new 144-dpi (150%) fonts. Program versions 12.8 and older work only with the 96-dpi fonts.

6. The CD and the Internet Setup File now include the tool DataBackup.Exe. Via a single mouse click, the program can generate a backup copy or restore the entire SatPC32 data folder (all personal settings). That is particularly helpful when the program is upgraded.

7. Some bugs have been fixed (concerning, i.e., downlink correction and transverter operation).

THANK YOU to Erich Eichmann DK1TB for creating and continuously enhancing SatPC32 for the global amateur satellite community. And for donating it to AMSAT-DL, AMSAT-NA, and AMSAT-UK. SatPC32 is surely the most lucrative fund raising item for these AMSAT groups.

Please support these AMSAT groups by registering your copy of SatPC32.

[ANS thanks Erich, DK1TB, for the above information]

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SB SAT @ AMSAT $ANS-319.05
High Altitude Balloon Project Seeks Student Applications

AMSAT News Service Bulletin 319.05
  From AMSAT HQ SILVER SPRING, MD.
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To All RADIO AMATEURS
BID: $ANS-319.05

The SpaceDaily Express newsletter carried the announcement that NASA is accepting applications from students at U.S. colleges and universities who want to send their experiments to the edge of space on a high-flying scientific balloon.

The annual NASA project provides near space access for 12 undergraduate and graduate student experiments to be carried by a NASA high-altitude research balloon. The flights typically last 15 to 20 hours and reach an altitude of 23 miles. Experiments may include compact satellites or prototypes.

The experiments are flown aboard the High Altitude Student Platform, or HASP, a balloon-born instrument stack launched from the Columbia Scientific Balloon Facility's remote site in Fort Sumner, N.M.

The goals of the project are to provide a space test platform to encourage student research and stimulate the development of student satellite payloads and other space-engineering products.

HASP seeks to enhance the technical skills and research abilities of students in critical science, technology, engineering and mathematics disciplines. The project is a joint effort between NASA and the Louisiana Space Grant Consortium.

NASA's HASP houses and provides power, mechanical support and communications for test articles and instruments. It can support approximately 200 pounds of student payloads. Since 2006, the HASP program has selected 44 payloads for flight, the work of more than 200 students from across the United States.

The deadline for applications is Dec. 18. NASA is targeting fall 2010 for the next flight opportunity. NASA expects to make selections in January 2010.

Information is available on-line at:
http://laspace.lsu.edu/hasp/Participantinfo.html

[ANS thanks SpaceDaily Express and the Louisiana Space Grant Consortium for the above information]

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SB SAT @ AMSAT $ANS-319.06
ARISS Status - 09 November 2009

AMSAT News Service Bulletin 319.06
  From AMSAT HQ SILVER SPRING, MD.

November 15, 2009
To All RADIO AMATEURS
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1. Upcoming School Contacts

An Amateur Radio on the International Space Station (ARISS) contact has been approved for Institut Don Bosco in Bruxelles, Belgium. The contact will take place on Monday, November 16 at 09:41 UTC via telebridge station WH6PN in Hawaii. Don Bosco is a secondary industrial technical school with an enrollment of approximately 750 students and offers courses in carpentry, electricity, mechanics, computing, printing and electronics.

Flanders District of Creativity and the Department of Education of the Flemish Government have teamed up for an Amateur Radio on the International Space Station (ARISS) contact on Tuesday, November 17 at 13:44 UTC via station LU8YY in Argentina. The groups have partnered to organize the very first congress for kids in Belgium. A conference is being set up with keynote speakers and interactive workshops for 1200 twelve year olds. Dirk Frimout & Sijtn Meuris will give a presentation about astronomy.

2. Westbrook Intermediate Experiences ARISS Contact

On Tuesday, November 3, an Amateur Radio on the International Space Station (ARISS) contact was held with Westbrook Intermediate School in Friendswood, Texas via telebridge station LU8YY in Argentina. Eleven students were able to ask Robert Thirsk, VA3CSA 11 questions before losing the connection with the ISS. Thirsk's son offered his father a surprise with the third question using his newly acquired ham radio license, KF5DRU.

3. Successful ARISS Contact John Taylor Collegiate

On Wednesday, November 4, an Amateur Radio on the International Space Station (ARISS) contact took place between John Taylor Collegiate in Winnipeg, Manitoba, Canada and Robert Thirsk, VA3CSA on the ISS. Telebridge station WH6PN in Hawaii provided the link. Fifteen people gathered for the event and observed the students as they asked 13 questions of the astronaut. Media coverage was provided by the Winnipeg Free Press.

4. Embry-Riddle Aeronautical University Speaks with Stott Through ARISS

Students at Embry-Riddle Aeronautical University (ERAU) in Daytona Beach, Florida experienced an Amateur Radio on the International Space Station (ARISS) contact on Thursday, November 5. The connection was made through the telebridge station VK4KHZ in Australia. Approximately seventy students and educators were present for the event and eighteen questions were asked and answered. This was a school crew pick of Nicole Stott, KE5GJN, an alumna of ERAU. The ERAU Web site boasts a news release as well as a photo of Stott on the ISS holding an Embry-Riddle banner.

5. ARISS Contact with Tokaisonritsu Muramatsu Elementary School

Tokaisonritsu Muramatsu Elementary School in Tokai Village, Ibaraki, Japan participated in an Amateur Radio on the International Space Station (ARISS) contact on Friday, November 6. Eight students posed two questions each to Nicole Stott, KE5GJN on the ISS as an audience of 110 students and parents watched. Media coverage was provided by three newspapers, one magazine and other outlets.

6. Astronaut Training Status

A basic operations session on the ARISS (Amateur Radio on the International Space Station) program was held with astronaut Mike Fossum, KF5AQG on Monday, November 2. Fossum is scheduled to fly with Expedition 28 in May 2011.

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

73,
This week's ANS Editor,
Lee McLamb, KU4OS